

REMARKS

Favorable reconsideration and allowance of the claims of the present application are respectfully requested. Before addressing the specific grounds of rejection raised in the present Office Action, applicants hereby affirm the telephonic provisional election to prosecute the invention set further in Group II, i.e., Claims 35-56.

In the present Office Action, Claims 35, 41, 44, 49 and 50 stand rejected under the judicially created doctrine of obviousness-type double patenting as allegedly unpatentable over Claims 1, 3, 4 and 25 of U.S. Patent No. 6,515,335 to Christiansen, et al. ("Christiansen, et al."). Claims 35, 37, 38, 38, 41-44, 46-48, 50-52, 54 and 55 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Christiansen, et al. Claims 40 and 49 stand rejected under 35 U.S.C. § 103 as allegedly unpatentable over Christiansen, et al. Claims 36 and 45 stand rejected under 35 U.S.C. § 103 as allegedly unpatentable over the combined disclosures of Christiansen, et al. and U.S. Patent No. 4,866,498 to Meyers ("Myers").

In regard to the obviousness-type double patenting rejection in view of Claims 1, 3, 4 and 25 of Christiansen, et al., applicants submit that the claims of the present application are patentable distinct from Claims 1, 3, 4 and 25 of Christiansen, et al. since the applied reference does not disclose a structure in which the insulating region that separates the relaxed SiGe layer and the underlying Si-containing substrate is a region that is resistant to Ge diffusion. The importance of the role of the Ge resistance barrier layer has been disclosed in the text of the present application and it was the intention of the applicants to include this feature as one of the defining elements of the final structure. Christiansen, et al. do not disclose or suggest the necessity of the buried insulating layers permeability to Ge atomic diffusion as a defining element. Indeed, nowhere in the Christiansen, et al. disclosure does it

teach or suggest that the insulating layer is resistant to Ge diffusion. Instead, in the applied reference the insulating layer merely is an electrically insulating material. The necessity of the structure to contain a Ge diffusion barrier is related to the disclosed and claimed method of the present application.

Differentiation between these two concepts becomes obvious by example; one can have an insulating layer which does not act as a diffusion barrier (for example, a buried layer of intrinsic Si (undoped)). The intrinsic Si layer would act as an electrically insulating layer, but exhibit no resistance to Ge diffusion. Conversely, buried layers formed by ion implantation (or non-stoichiometric oxides) can have very poor electrical insulation (or more) and yet serve as efficient Ge diffusion barrier. This is exactly the case in certain types of substrates formed by the SIMOX process.

Because the primary role of the buried layer of the present application is that of a Ge diffusion barrier, it is imperative that thickness be given which teaches what serves as an effective diffusion barrier. In Christiansen et al., no mention is given to the buried insulating layer thickness because it is inherently optimized based solely on electrical considerations (i.e., by device designers). In the current application, the role of the buried layers to resist atomic transport becomes an important design criterion, and thus the applicants disclose a range which will result in the formation of an effective Ge diffusion barrier.

In view of the above remarks, applicants submit that the judicially created obviousness-type double patenting rejection citing Claims 1, 3, 4 and 25 of Christiansen, et al. has been obviated. Reconsideration and withdrawal of the obviousness-type double patenting rejection are thus respectfully requested.

It is axiomatic that anticipation under §102 requires the prior art reference to disclose every element to which it is applied. *In re King*, 801 F.2d 1324, 1326, 231 USPQ 36, 138 (Fed Cir, 1986). Thus, there must be no differences between the subject matter of the claim and the disclosure of the prior art reference. Stated another way, the reference must contain within its four corners adequate direction to practice the invention as claimed. The corollary of the rule is equally applicable: absence from the applied reference of any claimed element negates anticipation. *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1571, 230 USPQ 81, 84 (Fed. Cir. 1986).

Applicants note that the above remarks make in regard to the obviousness-type double patenting rejection are application here for the anticipation rejection. Applicants thus incorporate the above remarks herein by reference. To iterate: Christiansen, et al. do not disclose a structure include an insulating layer that is resistant to Ge diffusion. Instead, Christiansen, et al. disclose a structure wherein the insulating layer is merely an electrically insulating layer.

The forgoing remarks clearly demonstrate that the applied reference does not teach each and every aspect of the claimed invention as required by *King* and *Kloster Speedsteel; et. al.*, therefore the claims of the present application are not anticipated by the disclosure of Lee or Hu. Applicants respectfully submit that the instant §102 rejection to the claims has been obviated and withdrawal thereof is respectfully requested.

Insofar as the § 103 rejections are concerned, applicants submit that the statute under 35 U.S.C. § 103(c) states that:

Subject matter developed by another person, which qualifies as prior art only under one or more subsections (e), (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention

were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Applicants submit that the Christiansen, et al. reference was applied by the Examiner as prior art under 35 U.S.C. § 103 via 35 U.S.C. § 102(e). Applicants note in this regard that MPEP § 706.02(k) states that:

Effective November 29, 1999, subject matter which was prior art under former 35 U.S.C. § 103 via 35 U.S.C. § 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention "were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person."

This change to 35 U.S.C. § 103 is applicable to all utility, design, and plant applications filed on or after November 29, 1999 including continued prosecution applications (CPA) filed under 37 C.F.R. § 1.53(d). Applicants note that the present application was filed on January 23, 2002; therefore the present application is entitled to the above change in 35 U.S.C. § 103.

In view of this, and the fact the present application and Christiansen, et al. "were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person", the Christiansen, et al. reference is disqualified as a reference under 35 U.S.C. § 103(c).

To evidence that the instant application and Christiansen, et al. "were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person", the assignment document of the present application (recordation date January 23, 2002 at Reel 012541, Frame 0896) was compared with the recorded assignment

of Christiansen, et al. (recordation date April 15, 2002 at Reel 012814, Frame 0457). In both instances, the inventors conveyed their entire interest to International Business Machines Corporation; therefore establishing common ownership between the instant application and Christiansen, et al.

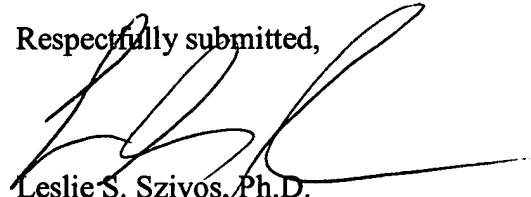
In view of the above information, Christiansen, et al. are disqualified as art therefore the instant § 103 rejection based solely on Christiansen, et al. has been obviated. Likewise, since Christiansen, et al. are disqualified as art, the other § 103 rejection is based solely on Meyers. Applicants submit, in this regard, that Meyers by itself does not make the claimed invention obviousness since the applied reference does not teach or suggest a heterostructure that includes a Si-containing substrate, an insulating region that is resistant to Ge diffusion present atop the Si-containing substrate; a substantially relaxed SiGe layer present atop the insulating region, wherein the substantially relaxed SiGe layer has a thickness of about 2000 nm or less; and a strained Si layer formed atop the substantially relaxed SiGe layer.

Meyers provide an integrated circuit comprising a substrate; a semiconductor device sensitive to photogenerated carriers; and a dissipative layer, extending between the substrate and the device over the entire area of the device, for conducting a DC bias current between the device and the substrate. The layer has an RC time constant greater than the time constant characteristic of photogenerated minority lifetimes. In a preferred embodiment of the invention, the dissipative layer is made of silicon nitride.

Meyers does not teach or suggest that his disclosed structure includes a relaxed SiGe layer located atop an insulating layer that is resistant to Ge diffusion. Likewise, Meyers does not teach or suggest a structure having a strained Si layer located atop the relaxed SiGe layer. As such, the claims of the present application are not obvious from the disclosure of Meyers.

In view of the above remarks, the rejections under 35 U.S.C. § 103 have been obviated; therefore reconsideration and withdrawal thereof is respectfully requested.

Respectfully submitted,



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